World Quality Report

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North America

Testing and QA developments in North America
are far advanced – and the region's trail-blazing
expectations are high

The North American region, which comprises the US and Canada, constitutes the single largest geographical sample in our survey, but of course, that is not its only claim to significance. This is part of the world that is also important not just in economic terms, but because of its leading role in technological development, which means it's worth setting the current scene before we look more closely at our findings this year.

This is a market that, as we might expect, is fairly mature in terms of its plans for and adoption of emerging techniques and processes. Agile and DevOps methodologies are taking off, and organizations increasingly see testing as an integral part of development, both in-house and as part of a third-party service offering. As part of this holistic mindset, they expect teams to be more rounded – to have not just technical skills, but analytical strengths too – and there is some shift-left activity too, especially in an agile context.

It's also worth considering some sector-specific trends. In North American financial services, we're seeing a particular focus on and growth in agile and DevOps developments, and also on analytics and artificial intelligence (AI), especially in terms of the adoption of tools in these areas. Test data management is growing in importance for banks, as regulatory requirements are resulting in greater audit scrutiny in light of some high-profile security breaches. Insurance companies are making the transition to new digital models – they have more catching up to do in this area than banks do – and overall in this sector, we're seeing more insourcing taking place, and a recent reduction in the use of external service providers.

In utilities and telecoms, the increasing range of customer touchpoints is changing the business dynamic and the IT strategy behind it. Where service providers are engaged, a Center of Excellence model is being adopted to a greater extent than in other industries, to help accelerate the transition to a more customer-driven, retail-like approach.
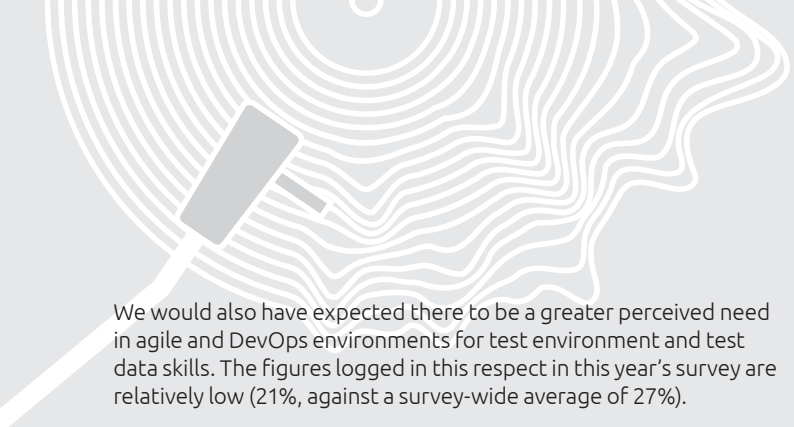
Objectives and challenges

Indeed, we see exactly these consumer-oriented factors at work when we turn to this year's data, and consider the key drivers behind testing and quality assurance (QA). For North America, the first three objectives are, in order: contribution to business growth and business outcomes, ensuring end-user satisfaction, and the detection of software defects before go-live.

Our survey also asked organizations about the challenges they face in applications development, and North American responses stand out in two interesting instances. One is a significantly higher-than-average lack of sufficient development and test environments, to which we shall return shortly. The other is the number of respondents who say the testing process is too slow (57% for North America, against a survey-wide average of 48%). In our experience, this impatience may be not because processes are indeed slow, but simply because in North America, where speed and efficiency are watchwords, the expectations are high.

Building momentum

Increasing acceptance of agile and DevOps is reflected in the survey figures, with North American respondents telling us that more than half (51%) of their overall project or team effort is allocated to testing in these areas. This seems to us to be a good estimate of where we are, which makes it surprising to discover that so many of them (60%) say they face challenges applying test automation at appropriate levels in agile. We would have expected automation to be more mature.

It seems to be the case that automated tools are not talking to each other, obliging organizations to think about designing integrated ecosystems. They should also be thinking about building intelligence into automation, by a greater adoption of AI and machine-learning algorithms within both manual and automated test methods.

We would also have expected there to be a greater perceived need in agile and DevOps environments for test environment and test data skills. The figures logged in this respect in this year's survey are relatively low (21%, against a survey-wide average of 27%).

AI and machine learning are buoyant. Projects in both these areas are ahead of average in almost every category, including customer processes, internal processes, and development and production. Investment levels in AI are high, and we see leading external service providers helping organizations to build their assets so as to maintain their momentum. The requisite skills North American organizations say they need in this area include an understanding of the implications of AI for business processes, software development engineer testing skills, test strategy and test design skills, and data science skills. In short, what we are witnessing here is the emergence of a job description for a full-stack, multi-disciplined tester.

There is an appetite in North America for test automation, especially in the context of agile developments, and our survey shows the extent to which organizations are tackling challenges in this area. We think the extent of these responses is an indicator of the pressure that businesses are under to achieve, against high workloads and tight deadlines. The two lowest figures tell their own story. They indicate the maturity of a market that knows what it wants to do, and that is overcoming obstacles to get there.

Automation in agile means that testing can take place within the current sprint, and not just in response to the previous iteration. The implications for this are wide-ranging, not just in terms of outcomes and process flows, but also in terms of how organizations design automated frameworks and orchestrate tests within the pipeline.

They should increasingly be designing intelligent, connected ecosystems that talk to each other, learn from each other, are adaptive to change, are self-sustaining, and that never fail the key need of the hour.

By contrast, test environments are more of an emerging market in North America, and the survey figures reflect an issue we have ourselves encountered in the field. It's the issue of ownership – of who owns responsibility for the space. For example, we see only 45% of performance testing conducted in a cloud-based test environment, against a survey-wide average of 63%.

Elsewhere, we see organizations say they have insufficient visibility into the availability of test environments. In the first case, we suspect organizations are assuming performance testing is the responsibility of the cloud service provider. In the second case, we sometimes find that testing teams lack visibility because they don't have management control over the environments they are using. This, needless to say, can be a problem for them.

Another point to keep in mind is that with agile teams, the availability of test environments and real-time data are a key impediment to agile delivery.

Where next?

What's the general direction of travel for North American organizations? Here's our take on what the big issues are likely to be in the year ahead.

The first is budget. Cost and efficiency concerns never go away. Wherever possible, North American organizations are seeking to reduce effort while achieving the same results.

The next is the space occupied by agile and DevOps. The benefits these methodologies can deliver are highly promising. However, QA must keep up, both in terms of designing intelligent automated ecosystems that talk to each other, and also in terms of workforce transformation.

And then we have developments in test environments, test data, and test automation. These, too, show great potential in terms of productivity – and indeed all three of them, together with agile and DevOps, have a bearing on the first issue on the list, which is budget and efficiency.

Why is there so much urgency in this market? Because North American IT teams in general, and QA and testing teams in particular, know there is a gap between business expectations and solutions outcomes. It's a gap they are constantly being asked to close. Completely? Yes, if at all possible. Within budget? Absolutely. Another reason is that agile tends to be more mature in North America than in other geographies.

These aren't straightforward challenges – but when your region is setting standards that others will follow, the scale of the thing is perhaps to be expected.